



ACADEMIC COLLABORATION IN THE ERA OF GLOBALIZATION: AN ANALYSIS OF THE IMPACT OF DIGITALIZATION ON EARLY CHILDHOOD EDUCATION

Jami'atul Hasanah ¹, Khoridatul Azizah ²,

^{1,2} Institut Agama Islam Tarbiyatut Tholabah Lamongan, Indonesia.

Email Corresponding Author: jamiatulhasanah82@gmail.com

Received: 12 December 2025. Accepted: 15 January 2026. Published: 31 January 2026

ABSTRACT

This study investigates the role of academic collaboration in improving the quality of early childhood education (ECE) amid the rapid digitalization brought by globalization. The main focus lies in understanding how collaborative academic networks enhance educators' competencies, expand knowledge sharing, and stimulate innovation in technology-based learning. Using a literature review method, this research examines journals, books, and scholarly publications related to global education and digital literacy in ECE. The findings reveal that academic collaboration plays a crucial role in fostering teacher professionalism and integrating digital tools effectively in early learning settings. However, digitalization also presents challenges such as decreased social interaction among children and increased dependence on digital devices. The study concludes that strengthening academic collaboration serves as a strategic approach to maximize the benefits of digital learning while mitigating its negative impacts on young children's holistic development in the era of globalization.

Keywords: Academic collaboration; Early childhood education; Digital literacy; Globalization; Digital learning.

ABSTRAK

Penelitian ini membahas pengaruh era globalisasi terhadap pendidikan anak usia dini (PAUD), khususnya melalui perkembangan teknologi digital yang mengubah paradigma pembelajaran. Pertanyaan utama yang diangkat adalah bagaimana kolaborasi akademik dapat meningkatkan kualitas pendidikan anak usia dini di tengah arus digitalisasi pembelajaran. Artikel ini memposisikan diri dalam wacana pendidikan global yang menekankan pentingnya sinergi antara pendidik, institusi, dan pemangku kebijakan dalam mengembangkan kompetensi digital dan inovasi pembelajaran. Metode yang digunakan adalah studi literatur dengan menelaah berbagai jurnal ilmiah, buku, dan publikasi yang relevan dengan tema globalisasi, kolaborasi akademik, dan literasi digital. Hasil penelitian menunjukkan bahwa kolaborasi akademik berperan signifikan dalam meningkatkan kapasitas profesional pendidik, memperluas jejaring pengetahuan, serta memperkuat integrasi teknologi dalam praktik pembelajaran anak usia dini. Meskipun digitalisasi terbukti efektif dalam mendukung proses belajar, terdapat pula tantangan berupa menurunnya interaksi sosial anak dan ketergantungan terhadap perangkat digital. Kesimpulannya, kolaborasi akademik yang kuat menjadi strategi kunci untuk memaksimalkan manfaat digitalisasi sekaligus meminimalkan dampak negatifnya terhadap perkembangan holistik anak di era globalisasi.

Kata kunci: kolaborasi akademik; pendidikan anak usia dini; literasi digital; globalisasi; digitalisasi.





INTRODUCTION

The progression of globalization has had a significant impact on various aspects of human life, including the field of early childhood education (ECE). Advances in digital technology serve as a primary driver behind the transformation of learning systems toward more interactive, innovative, and collaborative approaches. According to a 2023 UNESCO report, approximately 68% of ECE institutions worldwide have begun integrating digital technology into their learning activities; however, adoption rates vary considerably between developed and developing countries. In Indonesia, data from the Ministry of Education, Culture, Research, and Technology (2022) indicate that around 40% of ECE institutions still face limitations in accessing digital devices and resources, leading to disparities in learning quality between urban and rural areas.

This situation necessitates that educators adapt and enhance their professional competencies through academic collaboration. Such collaboration encompasses synergies among educators, university students, and educational institutions to share experiences, develop learning innovations, and strengthen capacities in using digital technology (Khasanah, 2021; Li, Q., & Chen, 2021). Nevertheless, research indicates that the practice of academic collaboration in Indonesia remains suboptimal due to a lack of scientific networks, limited training opportunities, and weak institutional support (Nugraha, A., Wiyani, N. A., & Sari, 2022).

Previous studies have made varying contributions to this theme. Wulandari (2022) emphasized that the use of digital media can enhance the effectiveness of ECE learning but did not examine the role of academic collaboration within that process. Conversely, Khasanah (2021) highlighted the importance of academic collaboration in improving teacher competence but did not connect it to the context of educational globalization. Meanwhile, international studies by Yang et al. (2025) and Li, Q., & Chen (2021) have shown that cross-institutional collaboration plays a crucial role in developing technology-based early childhood education models across different countries.

From these various studies, a research gap emerges: there is as yet no study that integrates the concepts of academic collaboration, educational globalization, and digital learning within the specific context of ECE in Indonesia. Therefore, this research aims to analyze the role of academic collaboration in enhancing the quality of early childhood education in the era of digitalization, while also examining the challenges posed by the digital divide and technology-based learning regulations.

Theoretically, this study is expected to enrich the literature on collaborative learning innovation and digital transformation within the ECE context. Practically, the findings of this research can serve as a reference for educators, students, and educational institutions to expand academic networks, improve digital competencies, and create an inclusive and equitable learning system in the era of globalization.

METHOD

This study employs a descriptive qualitative approach using library research as its research type. This approach was selected because the study focuses on an in-depth examination of various literature and previous research findings related to academic collaboration, educational globalization, and the impact of digitalization on early childhood education.

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DOI: <https://doi.org/10.58518/gajie.v2i01.4685>

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Data sources for this research were obtained from various bibliographical references, including books, scientific journals, academic articles, research reports, and official publications from educational institutions and international organizations relevant to the topic under investigation. The primary research instrument is the researcher themselves (human instrument), who is responsible for selecting, reading, comprehending, analyzing, and evaluating various literary sources that are relevant to the research theme.

Data collection techniques were carried out through documentary study, namely by identifying theories and research findings that support the discussion. Several theories used as references include Vygotsky's theory (1978) on the importance of social interaction in collaborative learning, Bandura's theory (1986) on social learning, and Rogers' theory (2003) on the diffusion of innovation, which explains how new technologies and ideas are implemented within educational systems.

Data analysis was conducted using content analysis techniques, involving careful reading of sources, identification of main ideas, categorization of data based on themes, and interpretation of conceptual relationships among academic collaboration, globalization, and the digitalization of early childhood education. This analytical process provides an in-depth understanding of the role of academic collaboration in strengthening educator competencies, as well as the function of digitalization in supporting learning innovation. This qualitative approach not only describes theories but also interprets the interconnections among concepts reflectively to obtain a comprehensive picture of their implementation in the era of globalization.

RESULTS AND DISCUSSION

Drawing upon a descriptive qualitative approach through library research, this study systematically examines the interconnections between academic collaboration, digitalization, and early childhood education (ECE) quality within the context of globalization. By analyzing various theoretical frameworks including Vygotsky's Zone of Proximal Development (1978), Bandura's Social Learning Theory (1986), and Rogers' Diffusion of Innovations Theory (2003) alongside empirical evidence from national and international sources, the analysis is structured into three main thematic sections. First, it explores the strategic role of academic collaboration in enhancing educator competence and pedagogical innovation. Second, it critically evaluates the ambivalent impacts of digitalization on young children's learning processes, including both opportunities and risks. Third, it presents a comparative cross-national analysis of ECE practices and policies in Indonesia, Finland, and South Korea, highlighting varying stages of innovation adoption. The subsequent findings are organized to address these themes sequentially, providing a comprehensive understanding of how collaborative academic networks and digital transformation can foster more inclusive, equitable, and high-quality early childhood education in the Indonesian context.

Table. Comparison of ECE Practices and Policies in Indonesia, Finlandia, and South Korea

Aspect	Indonesia	Finland	South Korea
Learning Focus	Dominated by academics (reading,	Play-based learning, well-being & family collaboration	Integration of digital technology & ethical usage



	writing, arithmetic); limited exploration		
Stage of Innovation Adoption (Rogers)	Persuasion	Confirmation	Implementation
Teacher's Role	Tend to be instructional	Creative facilitators	Technology assistants
National Policy	<i>Kurikulum Merdeka</i> (2022)	National Core Curriculum for ECEC (2018)	Early Childhood Education Act (2020)
Infrastructure Support	Uneven	Stable & well-facilitated	Comprehensive & state-supported

The Role of Academic Collaboration in Improving the Quality of Early Childhood Education

The findings indicate that academic collaboration plays a strategic role in improving the quality of early childhood education (ECE). Academic collaboration is defined as scientific cooperation among educators, students, lecturers, and educational institutions in the process of sharing knowledge, experiences, and resources to achieve common goals (Khasanah, 2021). In the ECE context, this collaboration fosters professional synergy, enhancing teacher competence while enriching pedagogical innovation. This concept aligns with Vygotsky's (1978) Theory of the Zone of Proximal Development (ZPD), which explains that learning becomes more effective when it occurs through interaction and collaboration with individuals possessing higher knowledge. Collaborative learning impacts not only students but also the professionalism of educators through reflection, peer observation, and joint research.

The Lesson Study for Learning Community (LSLC) program serves as a concrete example of academic collaboration implementation in Indonesia. This program involves teachers, lecturers, and students in collaboratively designing, observing, and reflecting on children's learning activities (Sumarni et al., 2022). The results demonstrate improved learning quality and the emergence of research-based innovations relevant to children's developmental needs.

Beyond strengthening professional competence, academic collaboration also supports the implementation of digital learning. Through cooperation among educators, parents, and academics, the processes of lesson planning and evaluation can be conducted in an integrated manner using digital platforms. However, the digitalization of ECE also carries risks concerning data security, exposure to age-inappropriate content, and screen addiction (Livingstone & Stoilova, 2022). Therefore, academic collaboration must encompass digital literacy training, child safety policies, and curricula oriented toward the ethical use of technology.

The Impact of Digitalization on the Early Childhood Learning Process

Digitalization has transformed the landscape of early childhood learning. The use of smartboards, interactive videos, and learning applications enhances children's engagement and



multisensory experiences (Suryana, 2020). Based on Bandura's (1986) Social Learning Theory, children learn through observation and imitation of behaviors, including those derived from digital media such as educational videos and interactive games.

Nevertheless, the impact of digitalization is ambivalent. Research by Wulandari (2022) indicates that digital technology can enhance children's creativity but also reduce social interaction and create gadget dependency when not controlled. UNICEF (2021) warns that unsupervised device use can lead to exposure to age-inappropriate content and disrupt children's emotional regulation.

A practical example from Surabaya shows that applications such as *Marbel Edu Games* and *YouTube Kids* can be used to introduce concepts of colors and numbers in an enjoyable manner. The teacher acts as a facilitator, ensuring that interaction continues between the child and their surrounding environment. This humanistic learning principle confirms that technology should serve as a pedagogical aid, not a replacement for children's social interaction.

Consequently, the digitalization of ECE learning needs to be guided by three main principles: safety, supervised accompaniment, and pedagogical relevance. These three principles provide a foundation for ensuring that technology supports children's balanced cognitive, social, and emotional development.

Early Childhood Education Practices in Indonesia and Other Countries

The comparison reveals significant differences in ECE policies and practices across countries. In Indonesia, ECE policies are regulated through *Permendikbud* No. 137 of 2014 and the *Kurikulum Merdeka* (Ministry of Education, Culture, Research, and Technology, 2022), which emphasize six aspects of child development. However, implementation remains dominated by academic activities such as reading and arithmetic, with exploration and creativity not yet optimized.

In contrast, Finland implements the National Core Curriculum for Early Childhood Education and Care (2018) with a play-based learning approach that emphasizes child well-being, family collaboration, and foundational digital literacy (Kangas, Venninen, & Ojala, 2016). Meanwhile, South Korea, through its Early Childhood Education Act and the Nuri Curriculum (Kangas, Venninen, & Ojala, 2016), has successfully integrated digital technology into learning while maintaining safety and ethical usage considerations.

These practical differences can be explained by Rogers' (2003) Diffusion of Innovations Theory. Finland has reached the confirmation stage, where play-based innovation has been implemented nationally. South Korea is at the implementation stage, with widespread integration of digital technology, whereas Indonesia remains at the persuasion stage, where awareness of educational innovation is increasing but has not yet become evenly distributed.

To accelerate the transition toward the implementation stage, Indonesia needs to strengthen cross-institutional academic collaboration, expand teacher digital literacy, and improve educational infrastructure. These steps are essential for effective and sustainable innovation diffusion, making Indonesian ECE more adaptive to the demands of the digital era.





CONCLUSION

This research demonstrates that academic collaboration plays a strategic role in improving the quality of early childhood education. Through synergy among lecturers, teachers, students, and educational institutions, there is an exchange of knowledge, experience, and professional practices that enriches learning innovation. Academic collaboration serves as a medium for disseminating new ideas, encouraging the emergence of reflective and research-based learning. This finding aligns with Rogers' (2003) Diffusion of Innovations Theory, which asserts that social interaction and academic communication are primary factors in accelerating the adoption of innovation in educational environments.

The findings also confirm that digitalization contributes significantly to the effectiveness of early childhood learning. The use of interactive digital media can enhance children's motivation and creativity; however, its success greatly depends on teacher readiness and institutional support. Technology should be utilized not merely as a tool but as a means of developing adaptive and contextual 21st-century competencies.

Furthermore, the comparison of educational practices across countries shows varying levels of innovation adoption: Finland has reached the confirmation stage, South Korea is at the implementation stage, while Indonesia remains at the persuasion stage. Therefore, strengthening academic collaboration, improving educator digital literacy, and implementing sustainable educational policies are key to realizing an innovative, inclusive, and globally relevant transformation of early childhood education.

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